

REMARKS

Claims 1-3 and 10-23 are pending. Claims 1, 12, and 20 are amended and new claim 24 is added with this response. Reconsideration of the application is respectfully requested for at least the following reasons.

I. REJECTION OF CLAIMS 1-23 UNDER 35 U.S.C. § 112

Claims 1-23 were rejected under 35 U.S.C. § 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- ***The Office Action states that the function of the priority level is not clear.***

Claim 1 has been amended to address this issue. Claim 1 relates to a method of transferring data between a host and a network by transferring data associated with entries of the first data transfer queue before transferring data associated with entries of the second data transfer queue ***based on the priority levels of the first and second data queues.***

As amended, claim 1 clearly associates a priority level with respective data queues (e.g., the first and the second data queue). More particularly, a first data queue has a first priority level higher than the priority level of the second data queue such that when data is transferred the first data queue (*i.e.*, data queue with a higher priority level) is serviced before the second data queue (*i.e.*, data queue with a lower priority level). Therefore, priority level regulates the transfer of data stored in data queues. Accordingly, withdrawal of the rejection for these claims and dependent claims is respectfully requested.

- ***The Office Action states that reference to "a part of the data" in claim 1 is vague and indefinite.***

The vague and indefinite claim language of claim 1 has been removed. Accordingly, withdrawal of the rejection for these claims and dependent claims is respectfully requested.

- ***The Office Action states that reference to "a different part of the data" in claim 1 is vague and indefinite.***

The vague and indefinite claim language of claim 1 has been removed. Accordingly, withdrawal of the rejection for these claims and dependent claims is respectfully requested.

- ***The Office Action states that it is not clear how entries are used for transferring data.***

Claim 1 relates to a method of transferring data between a host and a network wherein a plurality of data transfer queues comprise one or more entries. The entries comprising information associated with the data to be transferred between the host and the network. It will be appreciated, that one skilled in the art would recognize that ***information comprised within entries may vary depending on the application.*** For example, new claim 24 recites that the information comprised within the one or more entries comprises VLAN tag control information and a message field count indicating the number of bytes received from the network. However, claim 24 is only one possible embodiment of the information that could be included in the one or more entries. Therefore, as recited in claim 1 entries is used as a non-limiting term for information associated with transferred data (e.g., as defined in the specification). Accordingly, withdrawal of the rejection for these claims and dependent claims is respectfully requested.

- ***The Office Action states that the function of the descriptor management system in claims 12 and 20 is not clear, specifically stating that priority level information stored in the descriptor management system is not recited being as retrieved for providing priority function.***

Claim 12 relates to a system for transferring data between a host and a network comprising a network interface system that transfers data between the host and the network. The network interface system further comprises a descriptor management system ***storing a plurality of priority levels individually associated with one of the data transfer queues.*** The network interface system ***utilizes the data transfer queues stored in the descriptor management unit to*** transfers data associated with entries of the first data transfer queue before transferring data associated with entries of the second data transfer queue based on the priority levels of the first and second data queues.

Therefore, claim 12 recites a system whereby data queues have an associated priority level and the network interface system will transfer data from queues associated with a higher priority level prior to transferring queues associated with a lower priority level. In relation to claim 12, the descriptor management system stores data queues of different priorities so that they can be operated upon by the network interface system. Accordingly, withdrawal of the rejection for claim 12 and dependent claims is respectfully requested.

Claim 20 relates to a network interface system for interfacing a host with a network comprising a descriptor management system ***storing a plurality of priority levels individually associated with one of the data transfer queues.*** The network interface system ***utilizes the data transfer queues stored in the descriptor management unit to*** transfers data associated with entries of the first data transfer queue before transferring data associated with entries of the second data transfer queue based on the priority levels of the first and second data queues. For the same reasons stated above withdrawal of the rejection for claim 20 and dependent claims is respectfully requested.

II. REJECTION OF CLAIMS 1, 2 AND 11 UNDER 35 U.S.C. § 102(b)

Claims 1, 2 and 11 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,724,358 (Headrick et al.). Withdrawal of the rejection is respectfully requested for at least the following reason.

Claim 1 refers to a method of transferring data between a host and a network comprising transferring data between the host and the network by transferring data associated with descriptors stored in a first descriptor ring before transferring data associated with descriptors stored in a second descriptor ring based on the priority levels of the first and second data queues. Headrick et al. fail to anticipate this aspect of the present invention as will be more fully appreciated below.

As recited in claim 1, a plurality of queues in the shared memory comprise descriptor rings comprising descriptors 192, which individually include pointers to data stored in a shared memory 4 (*i.e.*, host memory 128). Furthermore, ***the queues respectively comprise an individual priority level*** (*i.e.*, different queues have different priority levels), such that ***a priority level is assigned to transmitted data by setting up a descriptor in an appropriate descriptor ring data queue***. Therefore, data associated with a higher priority queue is transferred before data associated with a lower priority queue.

Headrick et al. teach a method and system for communicating multiple priority level data packets between input ports. In particular, Headrick et al. teach an input layer 122 configured to receive an asynchronous transfer mode (ATM) packet from a network. (See, *e.g.*, Fig. 5; col. 5, ln. 55). The input layer 122 converts a received ATM cell to an internal format and then transfers the ATM cell to an input translation system 124 which disassembles the ATM cell into a header portion and a data portion. (See, col. 5, ln. 56-63). The header portion is converted into an internal tag which is stored in a memory manager (170 or 172). (See, col. 6, lns. 29-30 and col. 6, ln. 65 – col. 7, ln. 1). Each memory manager is associated with a pointer memory unit, 178, 180 that stores a plurality of pointers used to keep track of data stored within the cell buffer memory. (See, col. 7, lns. 25-31). For multiple memory managers there may be

multiple pointer memory units. (See, e.g., Fig. 7). The ***pointer memories contain a plurality of linked list type data structures that are the output queues*** for the plurality of output ports. (See, col. 8, Ins. 61-63). Each ***entry within the output queues may have a next memory location field containing the next element of the output queue***. (See, col. 9, Ins. 8-23).

Therefore, Headrick et al. teach a plurality of pointers stored in a pointer memory associated with a memory manager. Data is output from a port based upon a prioritization that utilizes a ***plurality of pointers stored in a pointer memory***, wherein each ***pointer has a next memory field that is used to determine the next data to be transferred***. This is in contrast to the present invention wherein ***pointers are placed in separate data queues (i.e., descriptor rings) which have an associated priority*** and descriptors from a data queue having a highest priority and transfers data for that data queue prior to reading a descriptor from a data queue having a lower priority (*i.e.*, the priority system is based upon placement of descriptors and entries in a proper data queue). Therefore, Headrick et al. fail to anticipate the invention of claim 1. Accordingly, for at least the above reasons withdrawal of the rejection is respectfully requested.

Independent claim 1 was rejected as being anticipated by Headrick et al. Claims 2 and 11 depend upon claim 1, respectively, and add further limitations thereto. The primary reference does not anticipate or suggest the present inventions of claim 1. Therefore claims 2 and 11 are also not anticipated by the cited art. Accordingly, withdrawal of the rejection is respectfully requested.

III. REJECTION OF CLAIMS 12, 13, 20, AND 21 UNDER 35 U.S.C. § 102(b)

Independent claims 12 and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,724,358 (Headrick et al.). Withdrawal of the rejection is respectfully requested for at least the following reasons.

Claim 12 of the present invention relates to a system for transferring data between a host and a network using a shared memory comprising a plurality of data

transfer queues comprising one or more descriptors indicating a memory buffer location storing the data to be transferred between the host and the network and a network interface system comprising a descriptor management system storing a plurality of priority levels, the priority levels being individually associated with one of the data transfer queues.

Claim 20 of the present invention relates to a network interface system comprising a descriptor management system storing a plurality of priority levels, the priority levels being individually associated with a data transfer queue in a shared memory, and wherein the network interface system transfers data between a buffer memory located within the host and the network.

Further, in figure 1, Headrick et al. show a block diagram of an asynchronous transfer mode (ATM) communication system. The ATM communication system comprises a number of nodes 22 interconnected by communication links 42. Headrick et al. state that a node may include a plurality of input modules 80, a switch fabric 82 and a plurality of output modules (See, col. 4, line 20-21). Figure 5 shows a switch fabric 82 in more detail. The switch fabric of figure 5 comprises a router and buffering unit 126, a buffer manager 128, an input layer 122 and input translation 124, and an output layer 132 and output translation 134. Figure 7 shows the router and buffering unit 126 and buffer manager 128 in more detail. The buffer manager comprises pointer memory 178 and 180. Headrick et al. teach that output queues are stored in the pointer memories 178, 180 and further that sub-queues may be present *within* the overall output queue (*i.e.*, sub-queues are stored in the pointer memories also) (See, col. 9, line 56-58).

The network interface periphery as claimed in claims 12 and 20 of the present invention comprises a descriptor management system storing a plurality of priority levels, the priority levels being individually associated with one of the data transfer queues. Headrick et al. teach that a combination of the output queue and the pointer memory determine the priority level and that sub-queues are used for multiple priority levels (col. 9, line 50-58). Queues and sub-queues are stored in pointer memories 178,

180 located in the buffer manager 128 (col. 8, line 61-65, col. 9, line 56-58). Headrick et al. do not teach any other storage of queues or sub-queues. Therefore, *for Headrick et al. to teach a network interface periphery it must comprise the buffer manager 128* since it is necessary that it include the pointer memories 178, 180 which store the queues and sub-queues as taught by claims 12 and 20.

The shared memory of claims 12 and 20 of the present invention comprises data transfer queues. As previously stated, Headrick et al. teach that the pointer memories 178, 180 contain a plurality of linked list type data structures that *are the output queues* for the plurality of output ports. Therefore, for Headrick et al. to teach a shared memory comprising data transfer queues *it is necessary that the shared memory also comprise the buffer manager 128* (which comprises the pointer memories 178, 180 which comprises the queues).

For Headrick et al. to anticipate the present invention: (1) the structure analogous to the network interface must consist of the buffer manager 128 so that the network interface contains a plurality of priority levels; and (2) the structure analogous to the shared memory must consist of the buffer manager 128 so that the shared memory contains the data queues. *Since the shared memory and the network interface periphery are separate objects it is not possible that both comprise the buffer manager 128 as would be necessary for Headrick et al. to anticipate the present invention.* Therefore, Headrick et al. do not anticipate the shared memory and network interface periphery as taught in claims 12 and 20 of the present invention.

Independent claims 12 and 20 were rejected as being anticipated by Headrick et al. Claim 13 depends upon claim 12 and adds further limitations thereto. Claim 21 depends upon claim 20 and adds further limitations thereto. The primary reference does not anticipate or suggest the present inventions of claims 12 or 20. Therefore claims 13 and 21 are also not anticipated by the cited art. Accordingly, withdrawal of the rejection is respectfully requested.

IV. REJECTION OF CLAIMS 3, 14, 15, AND 22 UNDER 35 U.S.C. § 103(a)

Claims 3, 14, 15, and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,724,358 (Headrick et al.). Withdrawal of the rejection is respectfully requested for at least the following reasons.

As stated above, Headrick et al. do not teach or suggest the invention of independent claims 1, 12, or 20. Claim 3 depends upon claim 1, and adds further limitations thereto. Claim 14 and 15 depend upon claim 12 and add further limitations thereto. Claim 22 depends upon claim 20 and adds further limitations thereto. Because the primary references do not teach the present invention of claims 1, 12, or 20, claims 3, 14, 15, and 22 are also non-obvious over the cited art. Accordingly, withdrawal of the rejection is respectfully requested.

V. CONCLUSION

For at least the above reasons, the claims currently under consideration are believed to be in condition for allowance.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, AMDP762US.

Respectfully submitted,
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